

A stretcher, hinged at the head end and provided with a worm gear to obtain any desired foot elevation, for safe transference of patients having spinal anesthesia is described by Doctor Furniss¹⁹ in the *Americal Journal of Surgery*. It is also valuable to provide proper drainage following nose and throat operations, in cases of shock, or used in the reverse position for pelvic drainage.

CONCLUSIONS

The patient's comfort is secured by attention to the details of improved posture before anesthesia is induced, by maintenance of a safe posture during the operation and by continuing the protection of the comfort and safety in his return to bed. The increased relaxation, the possibility of lighter anesthesia, the better postoperative condition and lessened discomfort are assets of the surgeon and anesthetist.

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PATHOLOGIC DEPARTMENTS OF SMALL HOSPITALS*

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LABORATORY examinations started in the hospital about 1890, when the routine examination of the urine was attempted. The only other examination that was made was an occasional estimation of the hemoglobin content of the blood. The scope of this work should be contrasted with the demand made upon the laboratory by the clinician today. The hospital laboratory must comply with the demand for biochemistry, clinical bacteriology, serology, clinical chemistry, functional tests, morbid anatomy, surgical pathology, basal metabolism, and clinical microscopy. If it is to be worthy of the hospital, the laboratory must conduct teaching courses and research.

The physicians who have graduated in the last ten years lean heavily upon the laboratory for diagnoses. Older men say that the art of clinical diagnosis will soon be lost. The reaction against this teaching has been felt in all the medical schools already and the students of medicine today no longer place blind confidence in laboratory determinations but compare them with clinical evidence.

The demand for laboratory work brought into being a horde of laboratories: some good, some bad, some indifferent, and some unspeakable. At the same time there arose a class of physicians who specialized in laboratory medicine.

In 1926, about thirty-five years after laboratory work started, fourteen hundred and three laboratories were sent questionnaires by the American Medical Association. The hospital laboratories, numbering about four thousand, were omitted from the list. One thousand and eighty replied. Of these, only one hundred and sixty were able to meet the rather low standards set by the association at this time and gain admission to its approved list.

LABORATORY STANDARDS

The standards of the American Medical Association require that the director shall be a physician, graduated from an acceptable school of medicine, who has specialized in laboratory medicine for three years. The standard also includes the licensing of the physician in the state when diagnoses are made by the laboratory director. Only a minimum of equipment is necessary for approval.

The laboratory standard of the American College of Surgeons simply states the minimum requirement, which is that the laboratory be "under competent supervision." This has been interpreted as being "best done through the medium of a clinical pathologist."

California, through the efforts of Doctor Kellogg and the State Board of Health, has offered voluntary inspection and certification of labora-

* Chairman's address, Pathology and Bacteriology Section of the California Medical Association at the sixty-first annual session, Pasadena, May 2-5, 1932.

tories, and certification is based upon the ability of the laboratory to do public health examinations.

These statements give a clue to the minimum requirements for the hospital laboratory. The personnel should consist of a director who is a physician trained in laboratory medicine, and such technicians as may be necessary. The equipment should be adequate.

THE DIRECTOR

The objection will at once be raised that the number of physicians practicing laboratory medicine is insufficient to fill all the hospital laboratories. As there are in the United States about one thousand hospitals of one hundred beds or more, and only about seven hundred pathologists, this objection is probably competent. The reason is further plainly indicated under the section on financing the laboratory. In 1924 nine hundred hospitals were investigated and only 80 per cent were supervised by pathologists, and of this 80 per cent only one-half gave full time to the laboratory.

TRAINING OF DIRECTORS

The director of the department of pathology should be a graduate physician. He should have had an adequate intern training with sufficient clinical experience to enable him to be sympathetic with the problems of the clinician. He should have had training in laboratory procedures and their application so that he is able to judge the value of any certain procedure and evaluate the tests in terms of the patient.

Lastly, and here is where the emphasis should lie, the director should have an adequate training in morbid anatomy, necropsy technique, and gross and microscopic pathology. The keystone of the pathologist's usefulness to the hospital is his knowledge of pathology and morbid anatomy. A study of this phase of the subject by Kenneth Lynch of Texas has shown that this knowledge can be obtained only by study in a large laboratory for a minimum of three years. It has been estimated that the knowledge gained in three years will be sufficient to enable him to deal successfully with about 90 per cent of the pathologic material coming to the laboratory. The remaining 10 per cent, consisting of the rare or little known lesions will require at least a further study of five to ten years. This statement of course implies a constant flow of material. The minimum would be the performance of two to three hundred necropsies and the examination and interpretation of about three thousand surgical specimens. And further, the consensus of opinion is that such knowledge cannot be self-gained but must be acquired through work in a laboratory under adequate, skillful supervision. Great stress is laid upon this training because of the dire results that follow the misinterpretation of histologic lesions. Breasts have been sacrificed, limbs have been amputated, and much unnecessary radiotherapy given because of mistaken interpretations based on a small fragment of tissues and made by a man inexperienced in histologic diagnosis. It is anticipated that these mistakes may become more numerous as the campaigns of the organizations

fighting cancer will bring patients to surgeons earlier, and with such early lesions a wider knowledge of histopathology is necessary for correct interpretation.

DUTIES OF THE DIRECTOR

The director is not a technician. He must be familiar with the tests and have performed a sufficient number to teach the technique and point out the pitfalls. But he cannot be expected to do technical work except along certain lines. These are necropsies, tissue diagnoses, and tests calling for knowledge and skill over and above mere technical skill.

The director is a consultant. He is the head of a department which ranks equal to the departments of medicine and surgery. Every organization concerned with the problem of laboratory work, which includes the American Medical Association, the American College of Surgeons, the American Society of Pathologists and Bacteriologists, and the American Society of Clinical Pathologists, insists that the proper status of the head of the department of pathology be that of a department head and consultant. He is a member of the staff of the hospital and a valuable member of the medical board of the hospital. Access to patients should be his right as a matter of course. The director supervises the work of the technicians who do the work in blood chemistry, bacteriology, hematology, parasitology, serology, basal metabolic rate determinations, and so forth. The records and the diagnosis files must be supervised by him.

The director should attend all staff meetings and should hold the regular clinic-pathologic conferences, which should preferably be separated from the staff business meetings. The scientific spirit should be inculcated by him in all the personnel. Appropriate research problems should be suggested by him and all possible aid given to the workers, especially as regards work space, supplies, consultation and encouragement. New laboratory procedures and new methods of interpretation should be brought to the attention of the clinicians by the director.

The director must have proper control over the budget of his department and absolute control over its personnel. He must coordinate his department to the general policy of his hospital and show the utmost tact, diplomacy, and consideration in his dealing with physicians, nurses, and executives. The director should, if possible, associate himself with a teaching institution.

FINANCING DEPARTMENT

The chief cause of the lack of an adequate number of pathologists is the relatively poor remuneration received by them. Unless a graduate has a certain predilection for the work, it is useless to ask him to spend five to eight years in preparation for his life work and tell him that his ultimate income will be about \$6000 a year. He naturally compares this income with that of his friends in internal medicine, surgery, or one of the other special branches. He then sees that with the same or less training and time spent, he can probably make much more than this sum in

one of these branches. These facts have made it almost impossible to keep good men in pathology. They may start training, but soon abandon it when the urge for things that money can buy comes upon them.

The financing of the department from the standpoint of the hospital authorities has not been settled to anyone's satisfaction. The scheme of a flat rate per patient loads the laboratory with a large amount of seemingly unnecessary work. The individual charge system puts a burden on the patient's pocketbook that may be unbearable.

The department of pathology should be self-supporting, paying the director, the technicians, the supply bill, the light, heat, and rent for occupied space. Probably the fairest way is to make a total of all expenses and pro rate the sum and add it to the patient's daily rate. The director should not allow the profits gained by his department to be used to pay the debts of another department. The profit should be used as a research fund.

Routine examinations can be briefly alluded to at this point. It is an axiom that a urinalysis, a blood count and probably a Wassermann test should be done on every patient as a routine measure. But further demands may be made. The pediatric department will probably insist upon a throat culture and a vaginal smear. The surgeon will insist on a blood coagulation time done upon patients having tonsils and adenoids removed. The American College of Surgeons compels the examination of all tissues removed at operation and the filing of a histologic report with the patient's chart. The surgeons will probably wish cultures and smears made of all exudates in their patients.

A flat fee may be charged the patient which will cover the expense of these routine examinations. Beyond this, special and extra examinations may be charged at the prevailing rates. Proper provision should be made for laboratory work on patients requiring repeated examinations. The remunerations of the pathologist should be adequate for a man of his training and ability. It should be based upon the income of the physicians of his standing and ability who are working in the community outside of the hospital. He should be allowed to do as much work for the doctors who use the hospital as time will permit. Frank competition with pathologists having private laboratories should be avoided.

It is strongly urged that no attempt be made to use the department of pathology to reimburse the hospital for a deficit incurred in another department. This is not conducive to good feeling or to a tranquil mind, which must be a part of the surroundings of the department head.

The only ethical way to pay the pathologist, in view of the fact that a physician cannot ethically practice medicine for a corporation, would be the subtraction of all expenses from the gross income and turning the net income over to the pathologist. This would give him an incentive for increasing the income and keeping down all necessary expenses. The fees could be adjusted so that a reasonable sum would come in.

Small hospitals may object to this plan as being too expensive. But it is perfectly feasible to have several hospitals unite and employ competent pathologists to supervise all the laboratories and have office hours at each hospital for consultation. In these days of rapid transit and communication it is not even necessary that the hospitals be in the same small town. A distance of fifty miles is not as great today as two miles was in the days of the horse and carriage. If the pathologists were given a small budget at each hospital and were allowed to do outside work for the doctors in the community and were employed as health laboratory officers, the remuneration should be fairly adequate. Small units of this kind could be used by the few universities who are endeavoring to turn out competent pathologists as a training and placement unit in their training scheme. Small communities may by this plan have the services of a competent pathologist at a cost well within their financial ability.

TECHNICIANS

Technicians are as necessary to the pathologists as an operating-room nurse is to the surgeon. They do not make interpretations but do certain technical procedures which are used in interpreting the clinical signs and symptoms.

A school for technicians should be established in each department of pathology. It is a wonderful aid to the pathologist in keeping up to date to associate himself with keen young minds who are forever inquiring into the "why" of things.

The students of this technical course should attend no less than eighteen months or two years. They should rotate through the various departments for their practical work and should receive didactic and personal instruction from the pathologist and senior technicians. A standard course of study is being prepared by the American Society of Clinical Pathologists.

The technicians should be well chosen and competent. They should know their place and not attempt to make diagnoses. They should register with the American Society of Clinical Pathologists and obtain certificates which testify to their qualifications. The California Board of Health also issues certificates upon examination.

SUMMARY

A small hospital, if it will, may have an adequate pathologic department. The qualifications of a properly trained pathologist are outlined and emphasis is laid on the necessity for training in morbid gross and microscopic anatomy. The duties of the hospital pathologist are given. He should be the incarnation of the spirit of scientific medicine and should keep alive the spirit of research in the hospital. The proper financing of the department of pathology is discussed. The need of a school for technicians is briefly set forth. Lastly a plan is suggested whereby several small hospitals in a community may band together and obtain the services of a competent pathologist at a cost which would not be a burden on any one hospital.

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